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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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James William Casper

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04/19/2004

PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
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EXAMINER

FLETCHER III, WILLIAM P

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 04/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,805

Applicant(s)

CASPER, JAMES WILLIAM

Examiner

William P. Fletcher III

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1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-15 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see the response, filed 1/16/2004, with respect to the objections and rejections under 35 U.S.C. § 112, set-forth in the Office action mailed 10/17/2003, have been fully considered in view of applicant's amendment and are persuasive. These objections and rejections have been withdrawn.
2. Applicant's arguments filed 1/16/2004, with respect to the rejections under 35 U.S.C. § 103(a) have been fully considered but they are not persuasive.

Applicant argues that Schimmel does not teach a waterborne pigment dispersion. Rather, applicant argues, water is disclosed as a suitable *diluent* along with multiple organic solvents for the purpose of reducing the viscosity of the dispersion but water is not indicated as being used as the continuous medium in the pigment dispersion.

The examiner agrees with this interpretation of Schimmel. Nevertheless, the composition of Schimmel reads on that claimed by applicant. The claims require that the pigment be "dispersed in water." Applicant has defined neither this term nor the term "waterborne" to require that the medium in which the pigment is dispersed be only water or exclude the presence of any organic solvent. Consequently, it is the examiner's position that, since Schimmel teaches that water is present in the medium in which the pigment is dispersed, this reference reads on the pigment's being "dispersed in water." Consequently, this argument is not persuasive.

Further, Schimmel teaches:

Water is a suitable diluent, provided *there is no phase separation* when water is mixed with the claimed copolymers and no incompatibility with the pigment component of the dispersion (8:10-13, emphasis added).

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and

Mixtures of organic solvents are appropriate diluents, as are mixtures of water and water-reducible organic solvents, provided there is not incompatibility with the pigment component of the dispersion. The term water-reducible, as used herein, describes any organic solvent that mixes with water *without producing a phase separation* (8:41-46, emphasis added).

Since, in the compositions of Schimmel, there is no phase separation between the water and organic solvent component, water is part of the continuous phase in which the pigment is dispersed, contrary to applicant's assertion. Consequently, this argument is not persuasive.

Applicant argues that the examiner's interpretation of Benefiel is incorrect, and that the carboxy-hydroxy acrylic polymer is used in a transparent topcoat and not in a pigmented coating composition. The examiner disagrees.

It is clear from both 6:37-64 and 2:62-65, that the carboxy-hydroxy acrylic polymer is used as a binder both in a pigmented base- and a transparent top-coating composition. This binder facilitates control of pigment orientation in the base film during application, over-coating with a transparent top-coat, and subsequent baking of the applied layers (6:43-54). This control is evinced by a lack of strike-in, which would result if pigments migrated *from the base-coat to the top-coat* (6:54-64). Consequently, this argument is not persuasive.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. **Claims 1-6, and 8-15, and 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schimmel et al. (US 5,585,427 A) in view of Benefiel et al. (US 3,693,147 A).**

Schimmel teaches a composition in which a water-borne pigment dispersion, comprising pigment dispersed in water, is dispersed in a solution of a polymer in an organic solvent [abstract and c. 7, l. 30 – c. 12, l. 58]. Non-limiting examples of the polymer are: acrylic, polystyrene, acrylonitrile, polyester, epoxy, polyamide, aminoplast, and polyurethane polymers [c. 10, ll. 36 – 42].

Schimmel does not explicitly state that the polymer has functional groups and hydrophilic groups.

Benefiel teaches a carboxy-hydroxy acrylic copolymer as a binder for a pigmented coating composition [c. 2, l. 62 – c. 4, l. 15]. Such a binder advantageously gives control over pigment orientation and dispersion [c. 6, ll. 37 – 64].

Since Schimmel gives, as an example of the polymer, an acrylic polymer, but does not give further detail, one of ordinary skill in the art would have looked to the prior art for teachings of suitable acrylic resins. In view of the teaching of Benefiel, it would have been obvious to one of ordinary skill in the art to select, as the acrylic resin, a carboxy-hydroxy resin, as suggested by Benefiel. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of greater control over pigment dispersion and orientation in the composition.

Carboxyl groups and hydroxyl groups read on functional and hydrophilic groups, respectively, as these groups are defined by applicant at pp. 4 – 5 of the spec.

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The composition of Schimmel may also contain (i.e., it is not required) a cross-linker, a specific example of which is isocyanate [c. 10, ll. 10 – 50 – 55]. Schimmel does not distinguish an activated composition from a non-activated one, but does encourage the packaging of the coating composition in separate components. It is well-known in the coating art to keep mutually reactive binder and cross-linker components of a coating composition separate prior to application. Doing so prevents increases storage life by preventing premature cross-linking. Consequently, it would have been obvious to store the binder portion separate from the cross-linker and to add the cross-linker to the binder prior to coating (thereby forming an “activated” composition). Further, the composition of Schimmel is coated onto a substrate and cured [c. 12, ll. 25 – 58].

Schimmel does not teach any specific acid or OH numbers. Benefiel teaches, however, that various examples of binder resins with acid numbers and OH numbers within applicant’s claimed ranges [see Examples]. Consequently, it would have been obvious to one of ordinary skill in the art to utilize carboxy-hydroxy resins with these physical properties. One of ordinary skill in the art would have been motivated to do so by the desire and expectation of utilizing a polymer with physical properties suitable for preparing the composition of Schimmel.

With respect to claims 13 and 14, the molecular weight of a polymer is a physical property that it is well known to adjust in the preparation of coating compositions because molecular weight is a result-effective property, effecting properties of the composition such as viscosity and flowability. Absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed molecular weight ranges, it would have been obvious

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to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation [see MPEP § 2144.05(II)].

With respect to claims 10 – 12, it is well-known to prepare acrylic polymers from vinyl monomers and it would have been obvious to do so. As to the T_g values claimed, these are also physical properties that are result-effective, effecting the flowability and curing of the composition. Absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed molecular weight ranges, it would have been obvious to one of ordinary skill in the art to optimize such a result-effective variable by routine experimentation [see MPEP § 2144.05(II)].

Allowable Subject Matter

5. Claims 7 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art neither teaches nor suggests the composition of claim 1 in which the hydrophilic groups are amine groups.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571) 272-1419. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P. Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WPF 4/13/2004

William P. Fletcher III
Examiner
Art Unit 1762


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SUPERVISORY PATENT EXAMINER
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